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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/017,472	12/07/2001	Sunil Chada	INGN:097US	5209

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EXAMINER	
LI, QIAN J	

ART UNIT	PAPER NUMBER
1632	13

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,472	CHADA ET AL.	
	Examiner	Art Unit	
	Q. Janice Li	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25,32-43 and 68-74* is/are pending in the application.

4a) Of the above claim(s) *5,6 and 68-74* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,7-25,32-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *07 December 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *11* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I, drawn to a method of using a nucleic acid encoding and expressing MDA-7, in Paper No. 9, and supplemental election of species, drawn to a method of treating angiogenesis-dependent cancer using an adenoviral vector expressing fragment 182-206 of SEQ ID No: 2, in Paper No. 12 is acknowledged. In paper #9, applicants indicated that claims 1 and 36 are linking claims of group II and I, upon allowance of group I, claims of group II should be rejoined. In response, Applicants are reminded that the restriction is not issued as linking claim type, because every invention recited in claims 1 and 36 are embraced by groups II and I. Each of the Inventions requires a separate search status and consideration. The inventions are mutually exclusive and independent methods for *in vivo* gene and protein therapies. Therefore, it is maintained that these inventions are distinct due to their divergent subject matter. Further search of these inventions is not co-extensive, as indicated by the separate classifications. The requirement is still deemed proper and is therefore made **FINAL**.

Please note that after a final requirement for restriction, the Applicants, in addition to making any response due on the remainder of the action, may petition the Commissioner to review the requirement. Petition may be deferred until after final action on or allowance of claims to the invention elected, but must be filed not later than

appeal. A petition will not be considered if reconsideration of the requirement was not requested. (See § 1.181.).

Claims 26-31 and 44-67 have been cancelled, claim 6 has been amended, and claims 68-74 are newly submitted. Claims 1-25, 32-43, and 68-74 are pending, however, claims 5, 6, and 68-74 are withdrawn from further consideration by the Examiner, pursuant to 37 CFR 1.142(b), as being drawn to non-elected inventions, there being no allowable generic or linking claim. Claims 1-4, 7-25, 32-43 are under current examination.

Claim Objections

Claims 1, 13, 18-23, 36-38 are objected to because of the following informalities: claims encompass more than one invention as defined in Paper #8, upon election of an invention for examination, said claims should be amended so that they only read upon the elected invention.

Claim 1 is objected to because of the claim recitation, "MDA-7". The abbreviation should be spelled out the first time it appears in the claims.

Claims 16 and 17 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, claims 16 and 17 are directed to injections performed distally to a disease site, yet depends from a claim directed to local injection (claim 13). Applicant is required to amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 7-25, 32-43 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for *intratumoral injection* of a nucleic acid expressing *full length* MDA-7 polypeptide for treating angiogenesis-dependent cancer, wherein the MDA polypeptide *lacks* a secretory signal, does not reasonably provide enablement for distal or systemic administration of an adenoviral vector expressing *fragments* of MDA-7 polypeptide for treating angiogenesis-dependent tumor, and wherein the MDA-7 polypeptide comprising a secretory signal. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

The factors to be considered when determining whether the disclosure satisfies the enablement requirements and whether undue experimentation would be required to make and use the claimed invention are summarized in *In re Wands*, (858 F2d 731, 737, 8 USPQ 2d 1400, 1404, (Fed Cir.1988)). These factors include but are not limited to the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability of the art, the breadth of the claims, and amount of direction provided. The factors most relevant to this rejection are the scope of the claims relative to the state of the art and the levels of the skilled in the art, and whether sufficient

amount of direction or guidance are provided in the specification to enable one of skill in the art to practice the claimed invention.

Given the broadest reasonable interpretation, the claims encompass treating cancer with fragments of MDA-7. The specification contemplates that truncated MDA-7 is part of the invention, which encompass fragments ranging from 10 to 206 contiguous amino acids of SEQ ID No: 2 (Specification, page 13, lines 16-20, for example). However, neither the specification, nor art of record, teaches a consensus region that is critical for the function of MDA-7 or the structural correlation of the polypeptide with its function for inhibiting the growth of tumor cells, and accordingly the specification does not provide a reasonable guide for those seeking to practice the invention. This is because the art of protein chemistry is one of the most unpredictable areas of biotechnology. Although the polynucleotide-coding region determines amino acid sequence of the protein, it is the conformation of three-dimensional structures that forms active site, allows the protein to function, and carry out the messages of the genome. *Bowie et al* (Science 1990 Mar; 247:1306-10) teach certain position in the sequence are critical to the three dimensional structure/function relationship and these regions can tolerate only conservative substitutions or none at all (page 1306, column 2). *Skolnick et al* (TIBTECH 2000 Jan;18:34-9) teach, "SEQUENCE-BASED METHODS FOR FUNCTION PREDICTION ARE INADEQUATE BECAUSE OF THE MULTIFUNCTIONAL NATURE OF PROTEINS. HOWEVER, JUST KNOWING THE STRUCTURE OF THE PROTEIN IS ALSO INSUFFICIENT FOR PREDICTION OF MULTIPLE FUNCTIONAL SITES" (abstract). They further teach, "KNOWING A PROTEIN'S THREE-DIMENSIONAL STRUCTURE IS INSUFFICIENT TO DETERMINE ITS FUNCTION" (box 1, page 35). Thus,

one cannot predictably extrapolate the teachings of the specification to the scope of the claims because the skilled artisan cannot envision the detailed structure of fragments of SEQ ID No: 2 encompassed by these claims with the function of the fragments. Moreover, it is unclear exactly what modifications and variations can be tolerated in this protein and still allows proper tumor-inhibiting function. Determination of the effects of particular modifications and fragmentations are not predictable until they are actually made and used, hence resulting in a trial and error situation. *Rudinger* (Peptide Hormones 1976; June;pages 1-7) teaches the relationship of sequence components and the peptide hormone function "THE SIGNIFICANCE OF PARTICULAR AMINO ACIDS AND SEQUENCES FOR DIFFERENT ASPECTS OF BIOLOGICAL ACTIVITY CANNOT BE PREDICTED *A PRIORI* BUT MUST BE DETERMINED FROM CASE TO CASE BY PAINSTAKING EXPERIMENTAL STUDY." (last paragraph of text on page 6). The specification fails to provide sufficient teaching for the fragments of MDA-7, it would have required undue experimentation for the skilled artisan intending to practice the instant invention.

With respect to the secretory signal, *Su et al* (PNAS 1998;9514400-5, IDS/C65) teach that the tumor-suppressing effect of mda-7 is associated with chromatin remodeling via its nucleus translocation from the cytosol, and facilitating the migration of mda-7 into the nucleus would enhance the selective growth inhibition of malignant but not normal cells (§ Discussion, page 14404). In view of such teaching, addition of a secretory signal on MDA-7 polypeptide, would prohibit the nucleus translocation, thus may abolish the anti-tumor effect of mda-7. In view of such, the invention does not

appear to be enabled in the absence of clarification of the contradictory evidence found in the cited references.

Claims also contemplate administering a (*any*) nucleic acid, naked or in any type of vector, particularly adenoviral vector encoding mda-7 through regional and systemic delivery from a site *distal* from the site of the disease. However, the specification fails to teach how the nucleic acid could reach the target site in a sufficient amount so that a therapeutic effect of tumor killing would achieve. While progress has been made in recent years for gene transfer *in vivo*, vector targeting to desired cells *in vivo* continues to be unpredictable and inefficient as supported by numerous teachings available in the art. For example, *Deonarain* (1998, Expert Opin. Ther. Pat., Vol. 8, pages 53-69) indicate that one of the biggest problems hampering successful gene therapy is the "ABILITY TO TARGET A GENE TO A SIGNIFICANT POPULATION OF CELLS AND EXPRESS IT AT ADEQUATE LEVELS FOR A LONG ENOUGH PERIOD OF TIME" (page 53, first paragraph). Deonarain reference gives high hope to targeted gene delivery, but the discussed strategies are still under investigation, and at the time, they were much less efficient than viral gene delivery (Conclusion).

The claims are drawn to using any naked polynucleotides and vectors. However, whether the recited vectors are suitable for the purpose of the instant invention are unclear. For example, adenoviral vectors are known for their tissue tropism of respiratory epithelial cells, which would be a critical limitation for targeting any angiogenesis-dependent cancer. *Miller et al* (1995, FASEB J., Vol. 9, pages 190-199), acknowledge various vector system available in the art, then teach, "NO SINGLE DELIVERY

SYSTEM IS LIKELY TO BE UNIVERSALLY APPROPRIATE, FOR INSTANCE, THE REQUIREMENTS OF GENE THERAPY FOR CYSTIC FIBROSIS ARE GREATLY DIFFERENT FROM THOSE OF CANCER" (1st paragraph, page 190). "ONCE AGAIN, TARGETING AT THE LEVEL OF THE VECTOR HAS NOT YET BEEN PARTICULARLY WELL DEVELOPED; HENCE, LIPOSOME OR VIRAL-MEDIATED DELIVERY OF THE CFTR GENE TO AIRWAY EPITHELIAL CELLS OF CF PATIENTS HAS RELIED LARGELY ON THE LOCALIZED DELIVERY OF THE VECTORS DIRECTLY TO THE AFFECTED TISSUES" (1st paragraph, page 198) *Makrides et al* (Protein Exp Pur 1999;17:183-202) teach "THE CHOICE OF AN EXPRESSION SYSTEM FOR PRODUCTION OF RECOMBINANT PROTEINS DEPENDS ON MANY FACTORS, INCLUDING CELL GROWTH CHARACTERISTICS, EXPRESSION LEVELS, INTRACELLULAR AND EXTRACELLULAR EXPRESSION, POSTTRANSLATIONAL MODIFICATIONS AND BIOLOGICAL ACTIVITY OF THE PROTEIN OF INTEREST, AS WELL AS REGULATORY ISSUES AND ECONOMIC CONSIDERATIONS IN THE PRODUCTION OF THERAPEUTIC PROTEINS." *Boucher et al* (J Clin Invest 1999 Feb; 103:441-5) review that host cell resistance to foreign gene is another difficulty for successful in vivo gene transfer. "DESPITE AN IMPRESSIVE AMOUNT OF RESEARCH IN THIS AREA, THERE IS LITTLE EVIDENCE TO SUGGEST THAT AN EFFECTIVE GENE-TRANSFER APPROACH FOR THE TREATMENT OF CF LUNG DISEASE IS IMMINENT. THE INABILITY TO PRODUCE SUCH A THERAPY REFLECTS IN PART THE LEARNING CURVE WITH RESPECT TO VECTOR TECHNOLOGY AND THE FAILURE TO APPRECIATE THE CAPACITY OF THE AIRWAY EPITHELIAL CELLS TO DEFEND THEMSELVES AGAINST THE PENETRATION BY MOIETIES, INCLUDING GENE-THERAPY VECTORS, FROM THE OUTSIDE WORLD." The specification fails to teach how to overcome the aforementioned difficulties in the art. It would have required undue experimentation for the skilled artisan intending to practice the instant invention.

Thus, it is evident that at the time of the invention, the gene therapy practitioner, while acknowledging the significant potential of gene therapy for cancer, still recognized

that such therapy was neither routine nor accepted, and awaited significant development and guidance for its practice. Therefore, it is incumbent upon applicants to provide sufficient and enabling teachings within the specification for such therapeutic regimen. Although the instant specification provides a brief review of a potential therapeutic use of the claimed method and data from ex vivo and animal studies, it is not enabled for its full scope because the specification does not disclose the structural-function relationship of MDA-7 fragments, whether the nucleic acids encompassed by the claims would function properly in vivo by any means of delivery.

Accordingly, in view of the quantity of experimentation necessary to determine the parameters for achieving *in vivo* gene expression in selected cells at therapeutic levels, in particular with any fragment of MDA-7 and any type of nucleic acids, the lack of direction or guidance provided by the specification as well as the absence of working examples with regard to targeted *in vivo* gene therapy with fragments of MDA-7 delivered by regional and systemic routes, and the breadth of the claims directed to the use of numerous fragments, it would have required undue experimentation for one skilled in the art to make and/or use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 is vague and indefinite because of the unit information is incomplete. The recited "pfu" could be the viral stock solution of "pfu per mL" or the infected cell concentration, "pfu per cell", it is unclear which one the applicants intend to claim, and thus the metes and bounds of the claim are uncertain.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 7, 8, 10-15, 24, 25, 35, 36, 42, 43 are rejected under 35 U.S.C. 102(e) as being anticipated by *Fisher* (US 6,355,622).

Fisher teaches a method of inhibiting angiogenesis dependent cancer in a subject suffering from cancer comprising intratumoral administering to nude mice bearing human cervical carcinoma cells replication deficient adenoviral vector encoding mda-7 gene (AA 1-206 of SEQ ID No. 2) three times a week for 4 weeks, the well-established tumors were growth inhibited in the treated mice compared to the control group (column 14, lines 35-67), wherein the expression of mda-7 was driven by a CMV promoter (column 13, line 56). *Fisher* also teaches that the nucleic acid could be embedded in liposomes and introduced into the cell (column 3, line 67, lipid

composition). *Fisher* teaches that ectopic expression of mda-7 inhibits the growth of tumor cells and may provide therapeutic benefit for the treatment of human cancer (column 14, lines 62-65). Therefore, *Fisher* anticipates the instant claims.

Claims 1-4, 7-25, 35-43 are provisionally rejected under 35 U.S.C. 102(e) as being anticipated by copending Application No. 09/615,154 which has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the copending application, it would constitute prior art under 35 U.S.C. 102(e), if published under 35 U.S.C. 122(b) or patented. This provisional rejection under 35 U.S.C. 102(e) is based upon a presumption of future publication or patenting of the copending application.

Claims of instant application and the cited application are each drawn to a method of treating a tumor patient comprising administering a viral vector expressing a mda-7 polypeptide or fragment 182-206 of SEQ ID No:2 combined with conventional chemotherapy, surgery, and radiation therapy. Considerable overlap in the scope of the claims is present. Therefore, the inventions as claimed are co-extensive.

This provisional rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the copending application was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131. This rejection may not be overcome by the filing of a terminal disclaimer. See *In re Bartfeld*, 925 F.2d 1450, 17 USPQ2d 1885 (Fed. Cir. 1991).

Claims 1-4, 7-25, 35-43 are rejected under 35 U.S.C. 102(f) because the applicant did not invent the claimed subject matter. U.S. patent application 09/615,154 has a different inventive entity, yet the disclosure anticipates the instantly claimed invention. It is unclear as to who is the real inventor. Appropriate clarification is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 7-9, 20-23, 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Roth et al* (US 6,069,134), in view of *Fisher* (US 6,355,622).

Roth et al teach a method comprising administering DNA damaging agent combined with adenoviral vector expressing a tumor suppressor (particularly p53, abstract), together with conventional chemotherapy and surgery for the treatment of cancer (column 3, lines 20-48). *Roth et al* teach that the DNA damaging agents include gamma-irradiation, x-rays and UV-irradiation, for example; and the chemotherapeutic agents include 5-fluorouracil (column 4, lines 57-67). *Roth et al* also teach that the adenoviral stock was administered at a m.o.i. of 10^8 pfu/ml (column 12, line 1). *Roth et al* do not teach that the tumor suppressor is MDA-7.

Fisher teaches that using adenovirus encoding MDA-7 as the tumor suppressor for treatment of cancer, and administering the vector to tumor cells *in vitro* at moi of 10^2pfu/cell, but does not specify the dosage for *in vivo* administration (column 14, line 22). *Fisher* teaches that ectopic expression of mda-7 inhibit the growth of tumor cells and may provide therapeutic benefit for the treatment of human cancer in general, but did not discuss the details of such therapy (column 14, lines 62-65).

Claims 20-23 and 37-41 are limitations for the timing of the combination therapy, neither Roth et al nor Fisher discuss the details. However, given the levels of the ordinary skilled in the art, these limitations would fall within the bounds of the optimization for a proper therapeutic regimen.

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the methods taught by *Roth et al* by simply substituting the p53 with mda-7 as taught by *Fisher et al* and administering the mda-7 either prior or after the conventional therapy at a dosage sufficient for tumor cell killing with a reasonable expectation of success. The ordinary skilled artisan would have been motivated to modify the claimed invention because the combined therapy would maximize the tumor-treating effect by any individual therapy alone. Thus, the claimed invention as a whole was *prima facie* obvious in the absence of evidence to the contrary.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the

unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-4, 7-25, 32, and 35-43 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 91-116,125-154, 159-174 of copending U.S. Patent Application No. 09/615,154.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the present application and the claims of the cited patent are each drawn to a method for treating a tumor patient comprising administering a viral vector expressing a mda-7 polypeptide combined with conventional chemotherapy, surgery, and radiation therapy. Considerable overlap in the scope of the claims is also present.

Accordingly, the claimed processes in the copending and the present application are obvious variants. Therefore, the inventions as claimed are co-extensive.

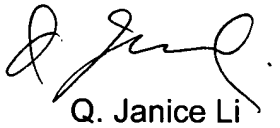
No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Q. Janice Li whose telephone number is 703-308-7942. The examiner can normally be reached on 8:30 am - 5 p.m., Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah J. Reynolds can be reached on 703-305-4051. The fax numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9307 for After Final communications.

Any inquiry of formal matters can be directed to the patent analyst, Dianiece Jacobs, whose telephone number is (703) 305-3388.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235. The faxing of such papers must conform to the notice published in the Official Gazette 1096 OG 30 (November 15, 1989).



Q. Janice Li
Patent Examiner
Art Unit 1632

QJL
September 22, 2003